



Application Number: 09/759,524
Attorney Docket Number: 07303.0031

REMARKS

By this Amendment, Applicants have canceled claims 1-16, 30, 49, and 53-75 without prejudice or disclaimer of the subject matter thereof. Applicants explicitly reserve the right to pursue the subject matter of these canceled claims in another application. In addition, Applicants have amended claims 17, 32, and 36 and added new claims 80 and 81. Accordingly, claims 17-29, 31-48, 50-52, and 76-81 are pending in this application. Claims 17, 36, 80, and 81 are independent claims.

The Examiner objected to the specification for the amendment appearing on page 15, line 4. See Office Action, page 2. Applicants respectfully submit that the amendment appearing on page 15, line 4 was made in accordance with 37 C.F.R. §1.52(c)(1). Nevertheless, solely for the purpose of expediting the prosecution, Applicants again show the same amendment in the attached Appendix and provide a clean copy of the paragraph.

In addition, Applicants have amended the specification to correct an inadvertent error of a typographical or clerical nature. This amendment to the specification does not introduce any new matter.

The Examiner rejected claims 17-35 under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner alleged that the recited first and second members of a force generator are unclear. See Office Action, page 2. Applicants do not agree with the Examiner's allegation. However, solely for the purpose of expediting the prosecution and without accepting the Examiner's allegation, Applicants have

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deleted the recitations of the first and second members from claim 17. Applicants respectfully submit that these deletions do not narrow the scope of claim 17.

The Examiner indicated that claims 22 and 41 contain allowable subject matter. See Office Action, page 5. Applicants appreciate the Examiner's early indication of allowable subject matter. By this Amendment, Applicants have rewritten claims 22 and 41 in independent form as claims 80 and 81, respectively. Accordingly, claims 80 and 81 are in condition for allowance.

The Examiner rejected claims 17, 18, 20, 21, 27-37, 39, 40, and 46-52 under 35 U.S.C. §102(b) as being anticipated by Sperling et al. (U.S. Patent No. 5,815,246); rejected claims 19 and 38 under 35 U.S.C. §103(a) as being unpatentable over Sperling et al. in view of Sasada (U.S. Patent No. 4,750,721); and rejected claims 23-26, 42-45, and 76-79 under 35 U.S.C. §103(a) as being unpatentable over Sperling et al. in view of Tokuda et al. (U.S. Patent Application Publication No. 2002/0054280).

Applicants respectfully traverse the rejection under 35 U.S.C. §102(b) because Sperling et al. fails to disclose all of the elements recited in the claims. In order to properly anticipate Applicants' claimed invention under 35 U.S.C. § 102(b), each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." See M.P.E.P. § 2131 (8th ed. 2001), quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. §2131 (8th ed. 2001), p. 2100-69.

For example, Sperling et al. fails to disclose a stage assembly including, among other things, "an actuator disposed adjacent to a side outer surface of the base to generate a correction torque," as recited in independent claim 17. As shown in Figs. 1-3, Sperling et al. discloses two X-actuators 45, 47, a Y-actuator 49, a support body 43, and a carrier 67. Sperling et al. further discloses anti-drift actuators 73, 75, and 77 fastened to the carrier 67 and exerting anti-drift forces to prevent the support body 43 from drifting towards an edge of the carrier 67. See col. 10, lines 40-64. However, Sperling et al. discloses that "**rotations of the support body 43** under the influence of the reaction moment of the X-actuators 45, 47 and the Y-actuator 49 are undesirable and **cannot be compensated for by** means of the comparatively small anti-drift forces of the **anti-drift actuators 73, 75, 77.**" (Emphasis added). Col. 11, lines 54-58. Accordingly, contrary to the Examiner's allegation, none of the anti-drift actuators 73, 75, and 77 "generates a correction torque."

To the extent that the Examiner may properly interpret a second balancing part 99 of Sperling et al. as the recited actuator, it is not "disposed adjacent to a side outer surface" of the support body 43. As shown in Fig. 3, Sperling et al. discloses a second balancing part 99 rotatable relative to a first balancing part 97 of the support body 43 to prevent undesirable rotations of the support body 43. See col. 11, lines 59-67. However, as shown in Fig. 3, the second balancing part 99 comprises "a flywheel 101 positioned within a recess 103 in the lower side of the first balancing part 97." Col. 11, lines 64-66. Accordingly, even if the Examiner may properly interpret a second



balancing part 99 as the recited actuator, it is not "disposed adjacent to a side outer surface" of the support body 43.

For at least these reasons, Sperling et al. fails to anticipate independent claim 17. For the same reasons, Sperling et al. also fails to anticipate independent claim 36. Furthermore, the cited references fails to render obvious the subject matter of independent claims 17 and 36 because Sasada and Tokuda et al., either alone or in combination, fail to make up for the deficiencies in Sperling et al.

In view of the foregoing remarks, Applicants respectfully submit that independent claims 17, 36, 80, and 81 are in condition for allowance. Claims 18-29, 31-35, 37-48, 50-52, and 76-79 are also in condition for allowance at least by virtue of their dependency from respective allowable independent claims.

In view of the foregoing, Applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

Attached hereto is a marked-up version of the changes made to the specification claims by this Amendment. The attachment is captioned "**APPENDIX TO AMENDMENT OF APRIL 16, 2003.**" Deletions appear as normal text surrounded by [] and additions appear as underlined text.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

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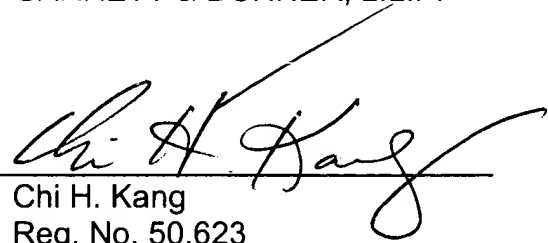
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Respectfully submitted,

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APPENDIX TO AMENDMENT OF APRIL 16, 2003

Amendments to the Specification:

Page 12, the paragraph beginning with "In accordance with" and bridging pages 12 and 13:

In accordance with Newton's [second] third law, stage force F_{in} acts in an equal magnitude but in opposite directions on stage 201 and base 202. Whatever motion stage 201 makes, base 202 will make the exact opposite motion scaled by the ratio of masses between stage 201 and base 202. In the photolithography system, generally base 202 weighs more than stage 201. Generally, stage 201 and base 202 move synchronously in opposite directions with the motion of stage 201 having a bigger amplitude. Thus, a trajectory or motion profile of stage 201 and base 202 can be determined and follows a pattern such as shown in Figs. 3A and 3B, respectively. For example, as illustrated in Fig. 5A, if stage 201 weighs 50 kg and base 202 weighs 500 kg, when stage 201 moves 100 mm to the left along the x axis, base 202 will move 10 mm to the right along the x axis, and accordingly base 202 will be accelerated at a rate of $1/10^{th}$ of the acceleration rate of stage 201.

Page 14, the paragraph beginning with "According to a second principle" and bridging pages 14 and 15:

(Amended) According to a second principle of the present invention, actuators 260 may act like a passive spring and/or damper. In one embodiment according to the second principal, a plurality of passive springs and/or dampers (not shown) indeed may

be used as actuators 260. Particularly, according to the second principal, the combined center of gravity of stage 201 and base 202 does move, and thus, actuators 260 do apply ground force F_g on the ground 82 or apparatus frame 72. However, the stage assembly 200, due to its movable base 202, reduces the magnitude of the motion of the combined center of gravity and the magnitude of ground force F_g , which thereby makes [making] the stage assembly 200 consistent with the second principal of the present invention operate smoother.

Amendments to the Claims:

17. (Amended) A stage assembly for manufacturing semiconductor wafers, comprising:

a stage to position at least one substrate, the stage being moved by [a first member of] a force generator in response to a wafer manufacturing control system;

a base supporting the stage, the base being allowed to move in response to a reaction force generated by [a second member of] the force generator;

at least one bearing to support the base allowing the base to move relative to a stationary surface; and

at least one actuator to control movement of the base, the movement being caused by at least one of a disturbance force and [a] the reaction force, the at least one actuator comprising an actuator disposed adjacent to a side outer surface of the base to generate a correction torque.

32. (Amended) The stage assembly of claim 30, wherein the first actuator generates the first correction force acting in a first direction passing through a center of gravity of the base, and the second actuator generates the second correction force acting in a second direction passing through the center of gravity of the base, and the [third] actuator disposed adjacent to the side outer surface of the base generates [a] the correction torque around a third direction.

36. (Amended) A stage assembly for manufacturing semiconductor wafers, comprising:

a stage to position at least one substrate, the stage being moved in accordance with a wafer manufacturing control system;

a base supporting the stage, the base being allowed to move in response to a reaction force generated by a movement of the stage;

at least one bearing to allow the base to levitate above a stationary surface; and

at least one actuator to control movement of the base, the movement being caused by at least one of a disturbance force and [a] the reaction force, the at least one actuator comprising an actuator disposed adjacent to a side outer surface of the base to generate a correction torque.